

Fig. 1

Fig. 2A

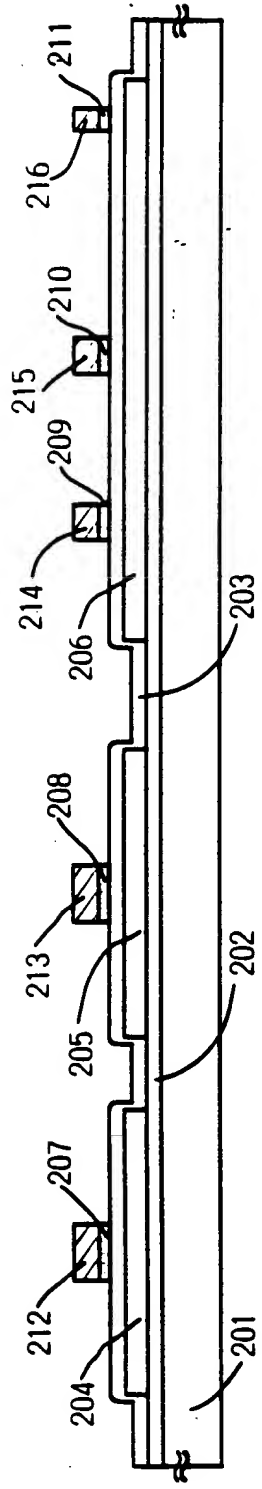


Fig. 2B

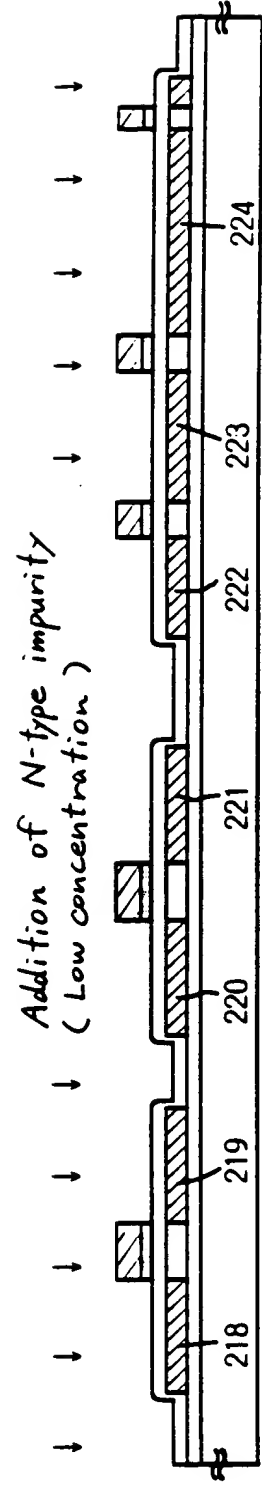
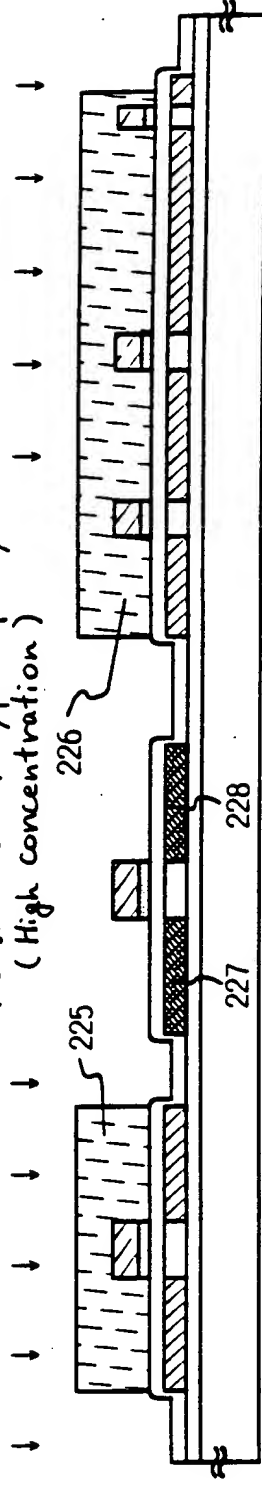


Fig. 2C



Addition of N-type impurity  
(Low concentration)

Addition of P-type impurity  
(High concentration)

11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

Addition of N-type impurity  
 (High Concentration)

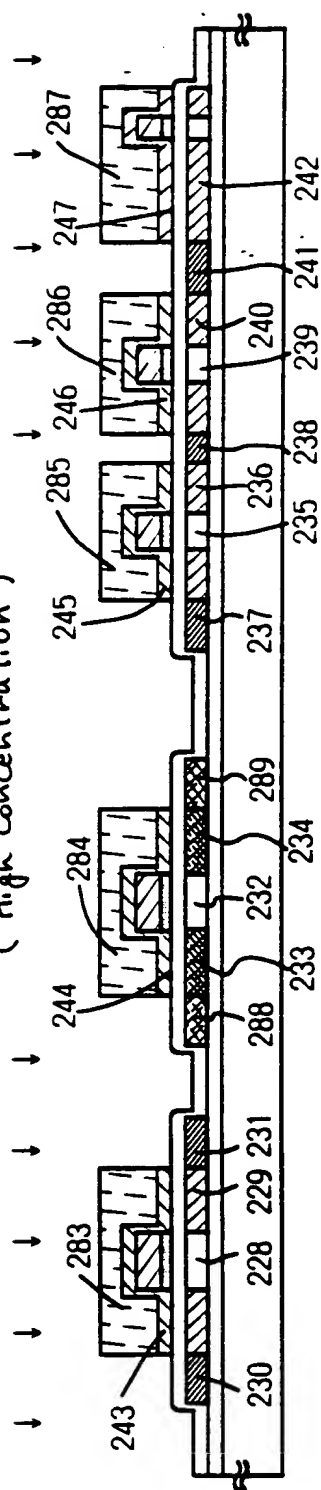


Fig. 3A

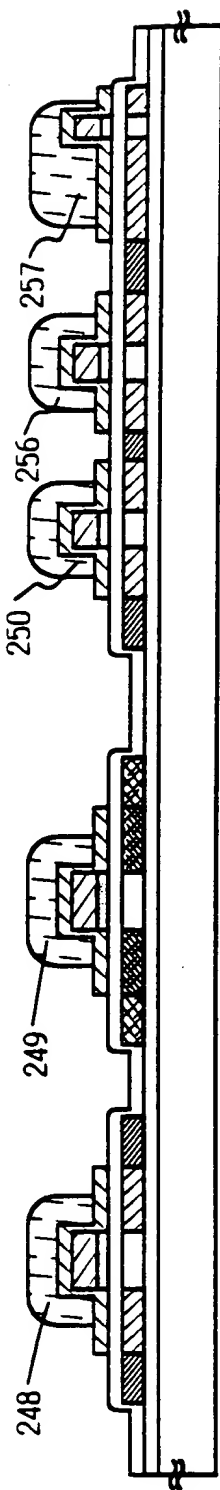


Fig. 3B

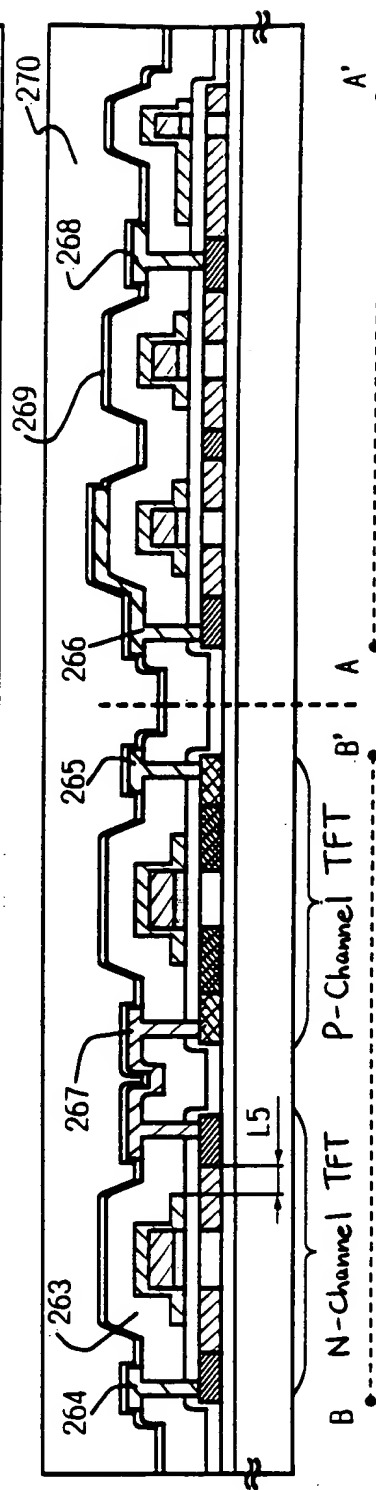


Fig. 3C

B N-Channel TFT P-Channel TFT A' A

CMOS Circuit

Pixel Matrix Circuit

FIG. 4A is a cross-sectional view of a pixel matrix circuit in a CMOS process. The circuit includes an N-channel TFT (263) and a P-channel TFT (264) connected to a pixel matrix circuit (265). The N-channel TFT (263) is connected to a gate voltage source (266) and a data line (267). The P-channel TFT (264) is connected to a gate voltage source (268) and a data line (267). The pixel matrix circuit (265) is connected to the gates of the N-channel TFT (263) and the P-channel TFT (264). The pixel matrix circuit (265) is connected to a data line (267) and a gate voltage source (266). The pixel matrix circuit (265) is connected to a data line (267) and a gate voltage source (268). The pixel matrix circuit (265) is connected to a data line (267) and a gate voltage source (266). The pixel matrix circuit (265) is connected to a data line (267) and a gate voltage source (268).

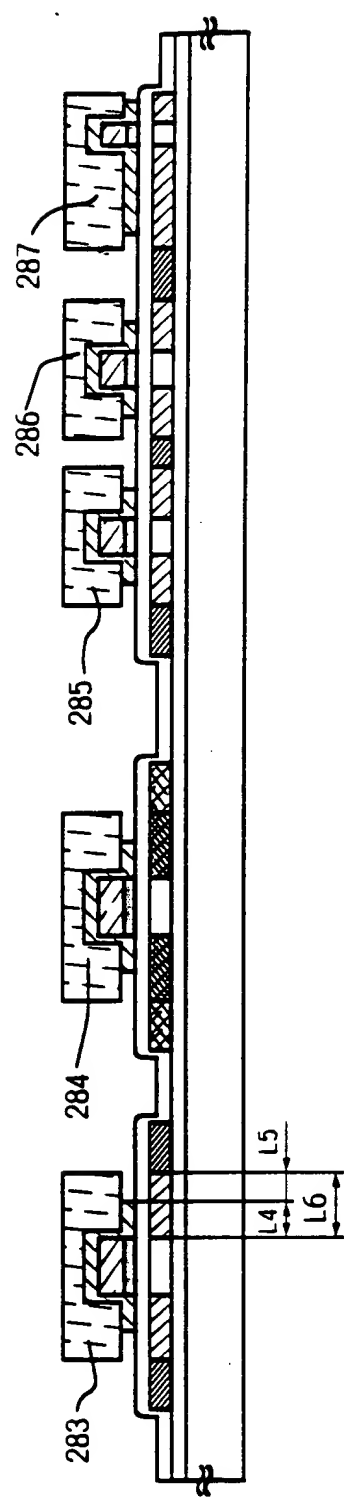


Fig. 4A

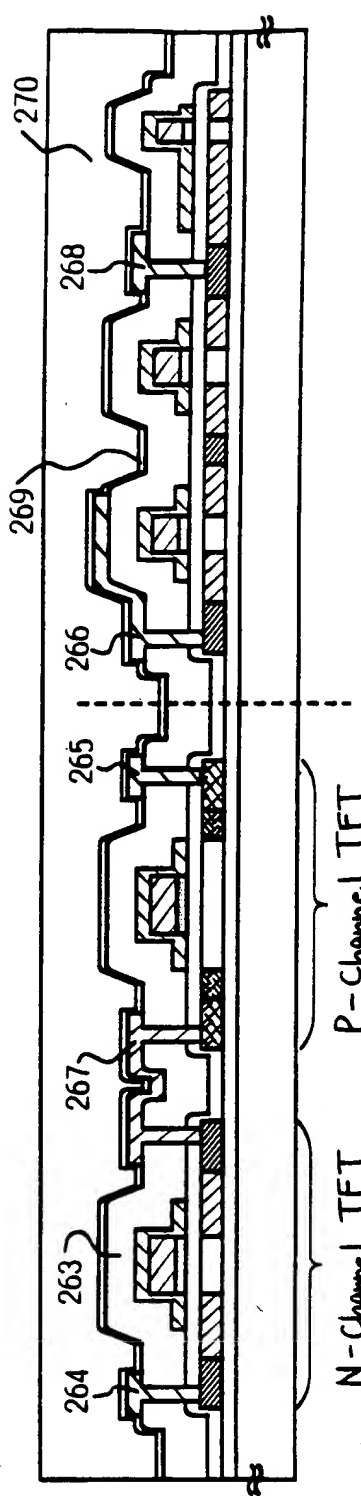


Fig. 4B

N-Channel TFT      P-Channel TFT

CMOS Circuit      Pixel Matrix Circuit



FIG. 6A

Addition of N-type impurity  
(High Concentration)

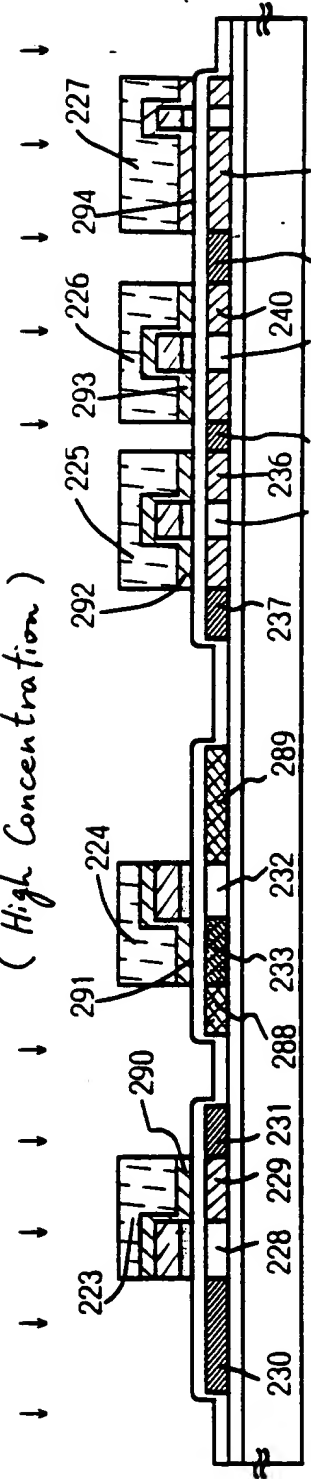


Fig. 6A

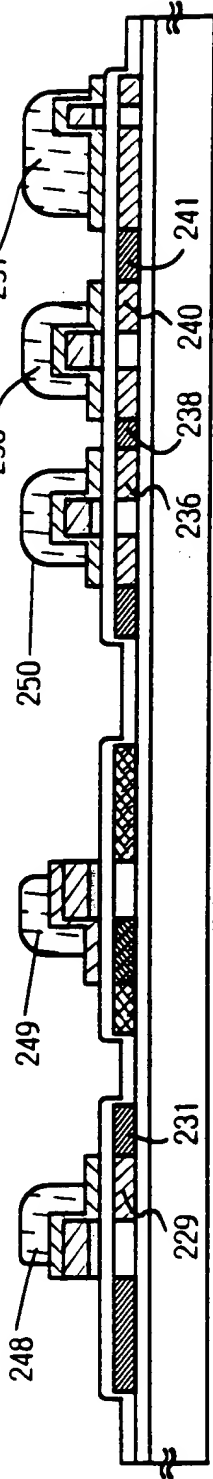


Fig. 6B

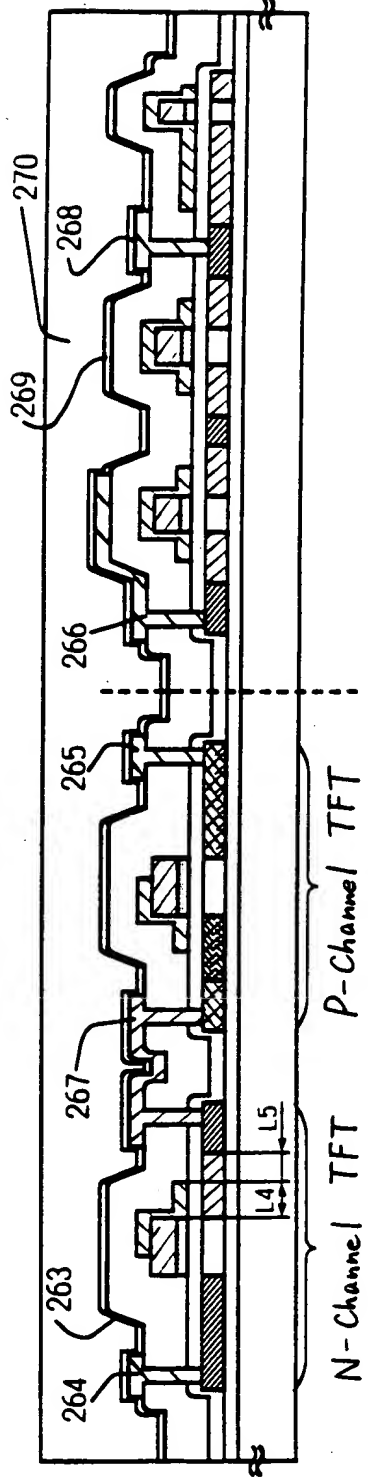


Fig. 6C

N-Channel TFT    P-Channel TFT    CMOS Circuit    Pixel Matrix Circuit

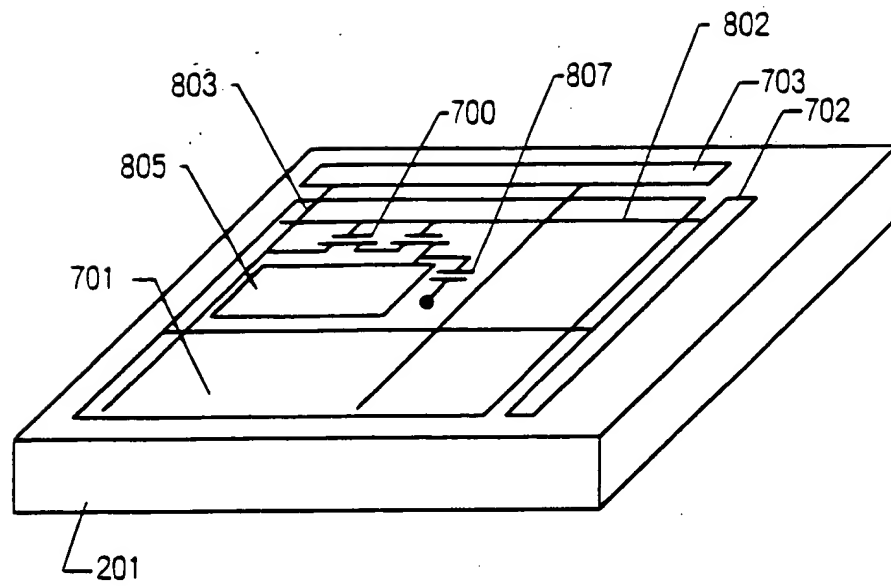


Fig. 7

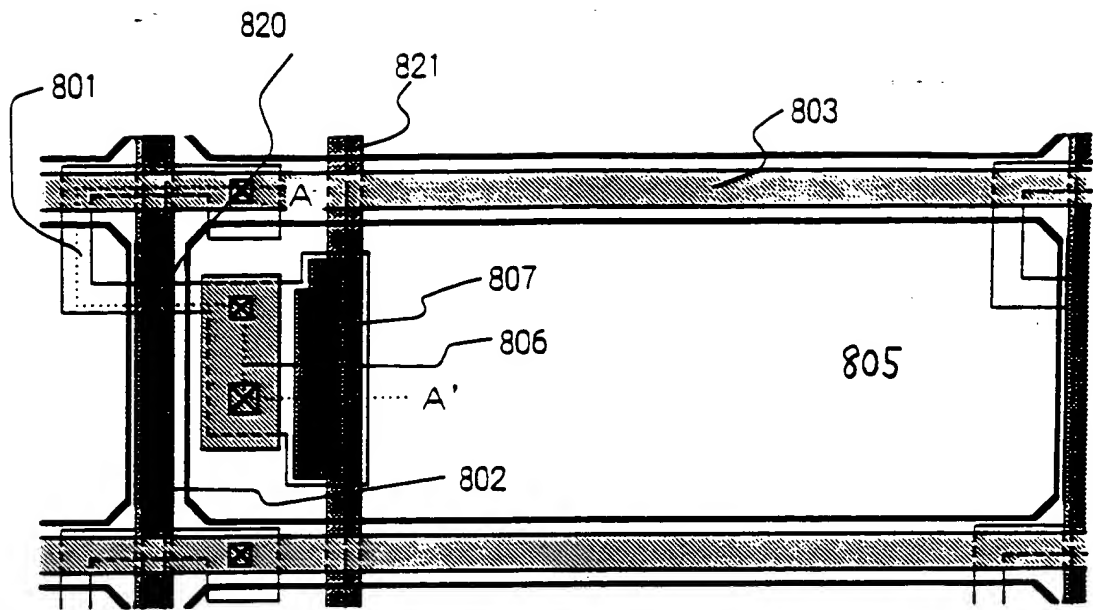


Fig. 8A

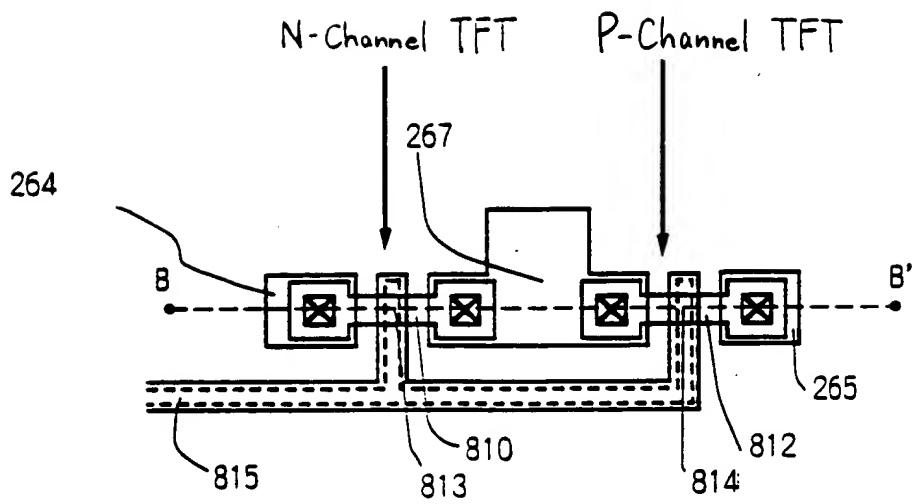


Fig. 8B



Fig. 9A

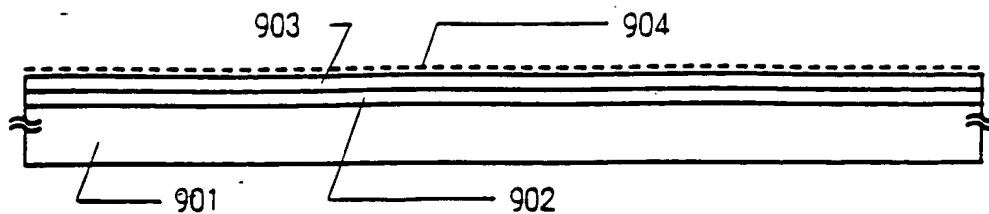


Fig. 9B

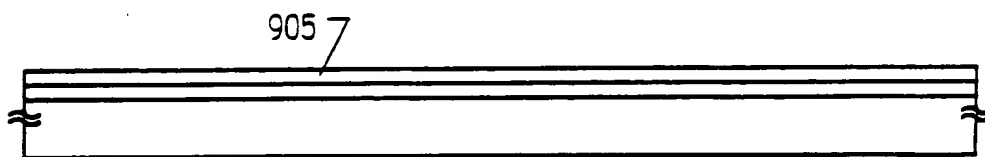


Fig. 10A

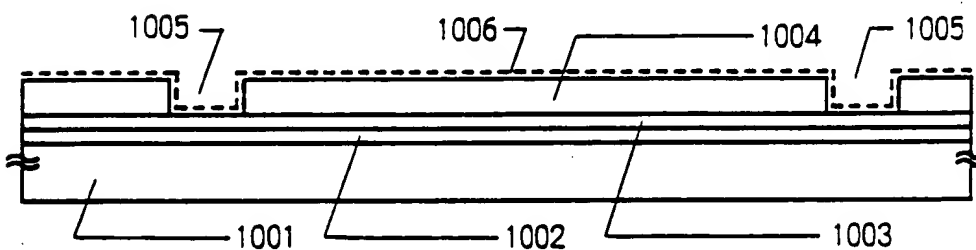


Fig. 10B

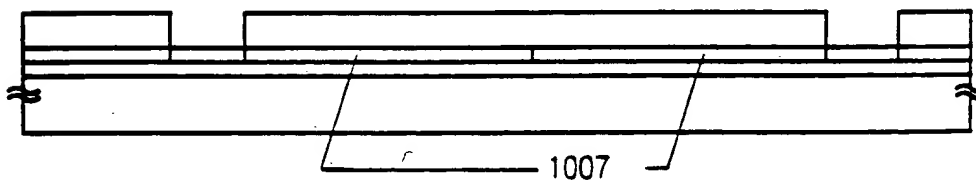


Fig. 11A

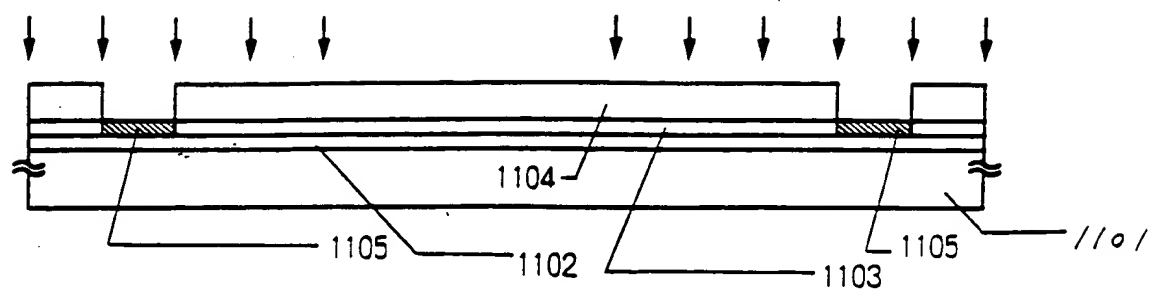


Fig. 11B

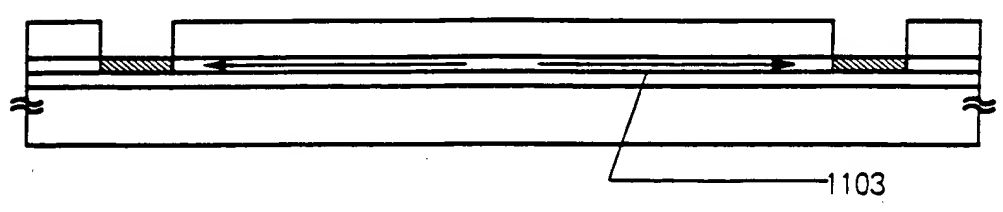


Fig. 12A

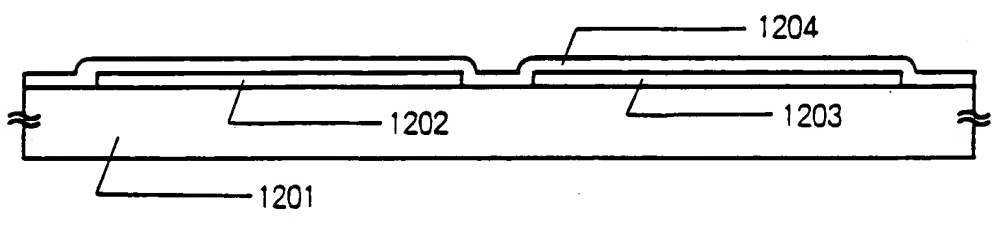
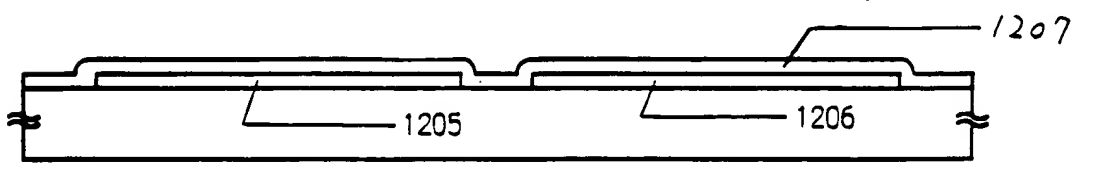


Fig. 12B





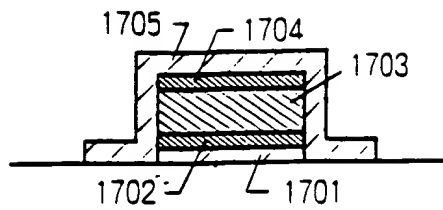


Fig. 14A

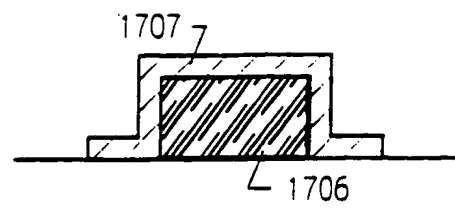


Fig. 14B

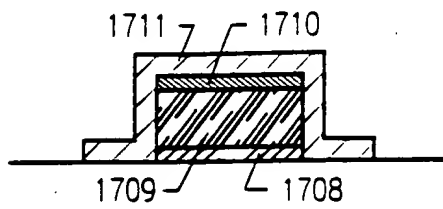


Fig. 14C

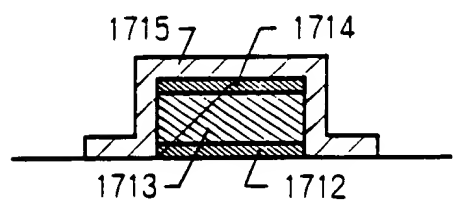


Fig. 14D

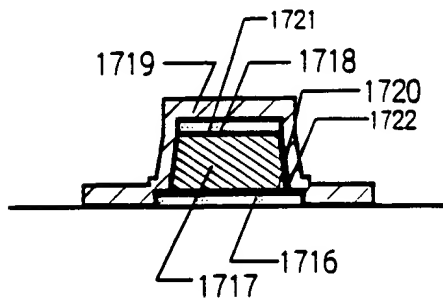


Fig. 14E

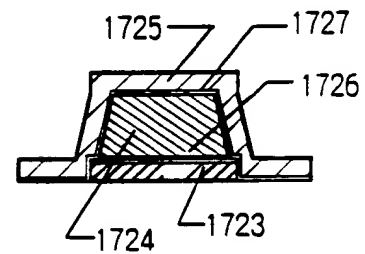


Fig. 14F





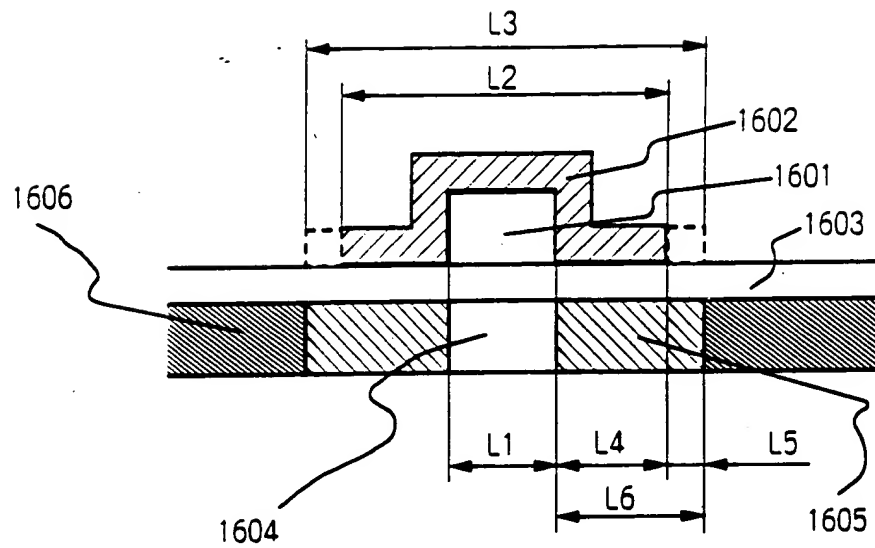


Fig. 16

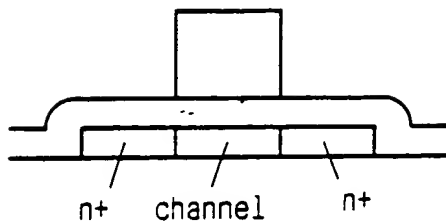


Fig. 17A-1

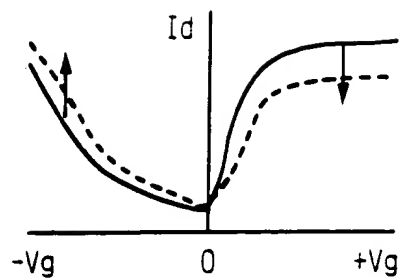


Fig. 17B-1

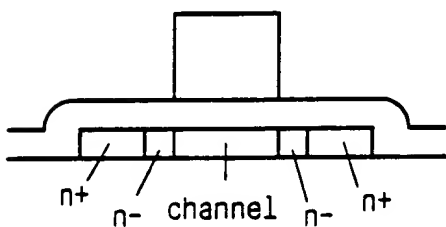


Fig. 17A-2

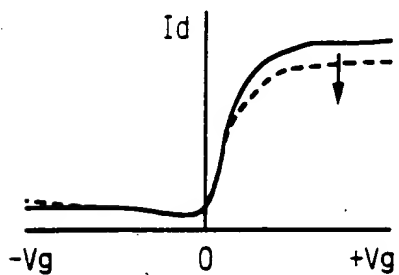


Fig. 17B-2

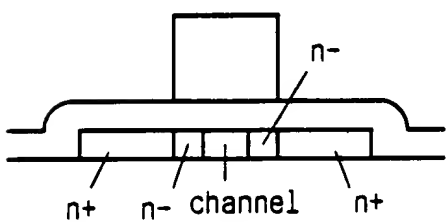


Fig. 17A-3

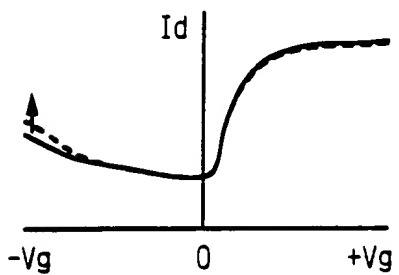


Fig. 17B-3

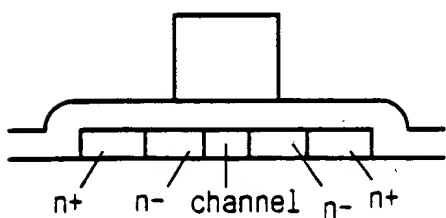


Fig. 17A-4

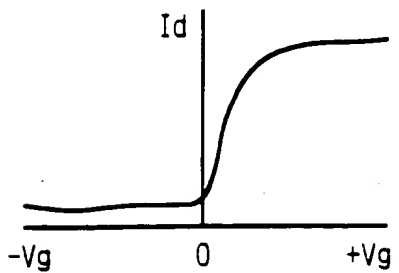


Fig. 17B-4



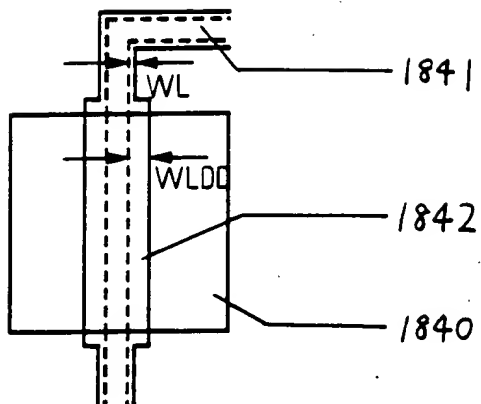


Fig. 18

FIG. 19 is a cross-sectional view of the device of FIG. 18, showing the device in a second state of operation. In this state, the device is configured to receive and process a second input signal. The device includes a first input terminal 225, a second input terminal 227, a third input terminal 228, and a fourth input terminal 296. The device is configured to receive a second input signal at the first input terminal 225, and to process the second input signal at the second input terminal 227, the third input terminal 228, and the fourth input terminal 296. The device is configured to output a second output signal at the first output terminal 225, and to process the second output signal at the second output terminal 227, the third output terminal 228, and the fourth output terminal 296. The device is configured to receive a second input signal at the first input terminal 225, and to process the second input signal at the second input terminal 227, the third input terminal 228, and the fourth input terminal 296. The device is configured to output a second output signal at the first output terminal 225, and to process the second output signal at the second output terminal 227, the third output terminal 228, and the fourth output terminal 296.

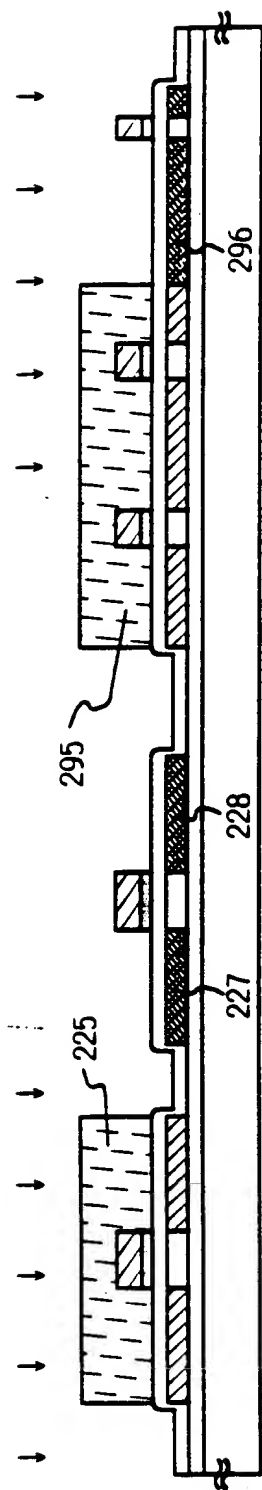


Fig. 19

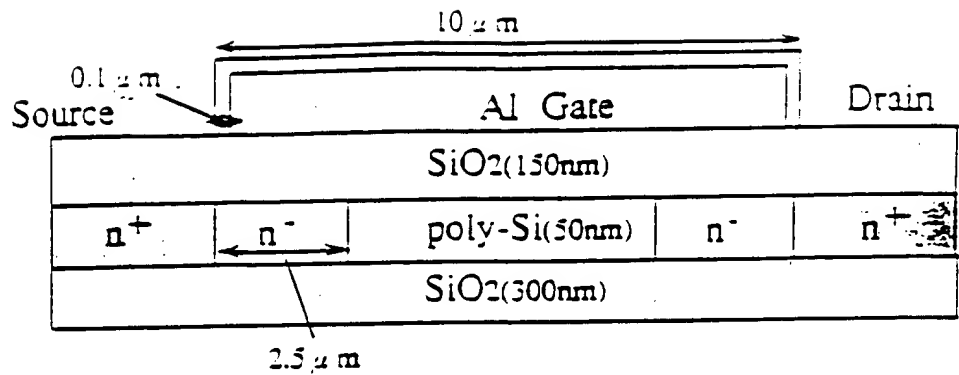
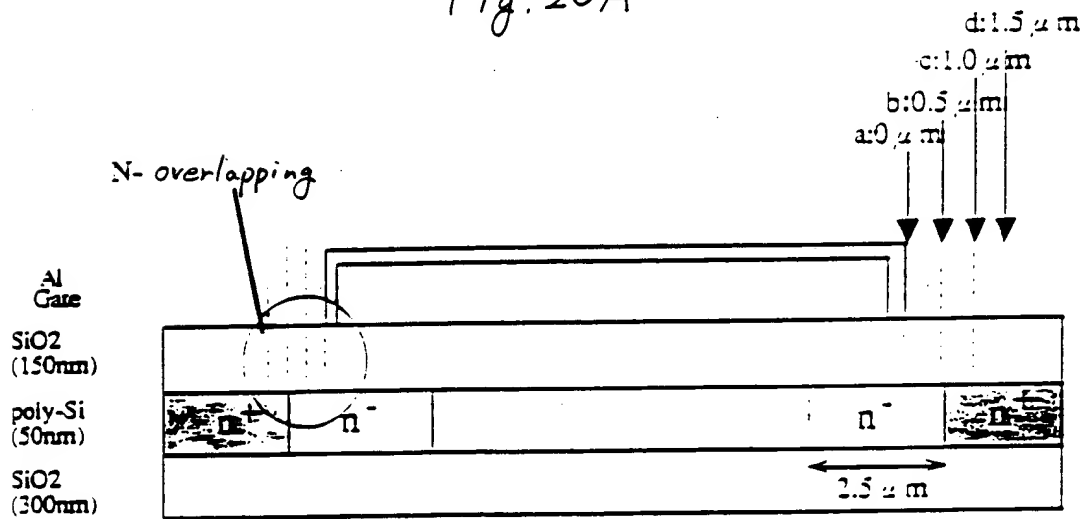


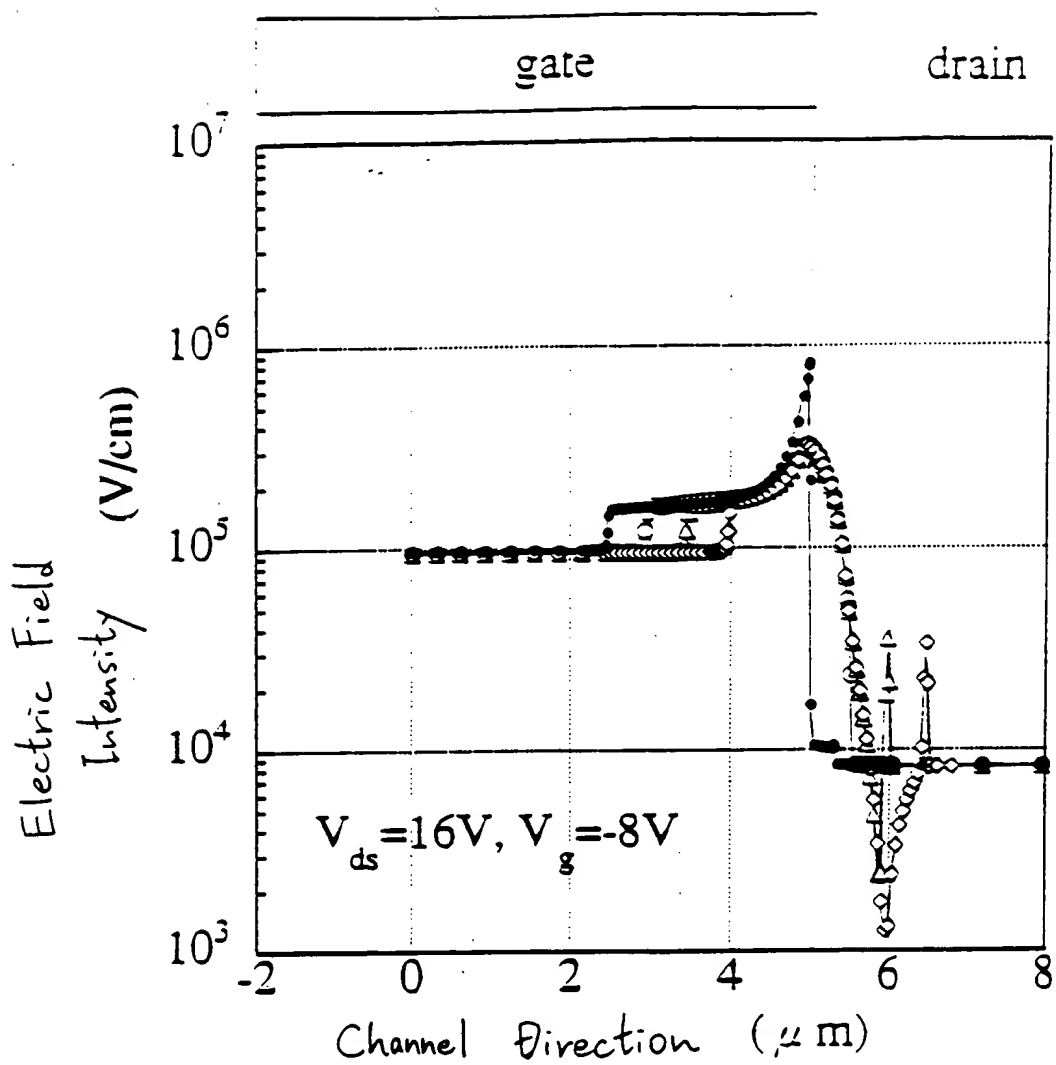
Fig. 20A



\* Width of n<sup>-</sup> region is fixed in 2.5  $\mu\text{m}$ .

Concentration of n<sup>-</sup> region (activated conc.) :  $4.2 \times 10^{17}/\text{cm}^3$   
 Concentration of n<sup>+</sup> region (activated conc.) :  $1 \times 10^{20}/\text{cm}^3$

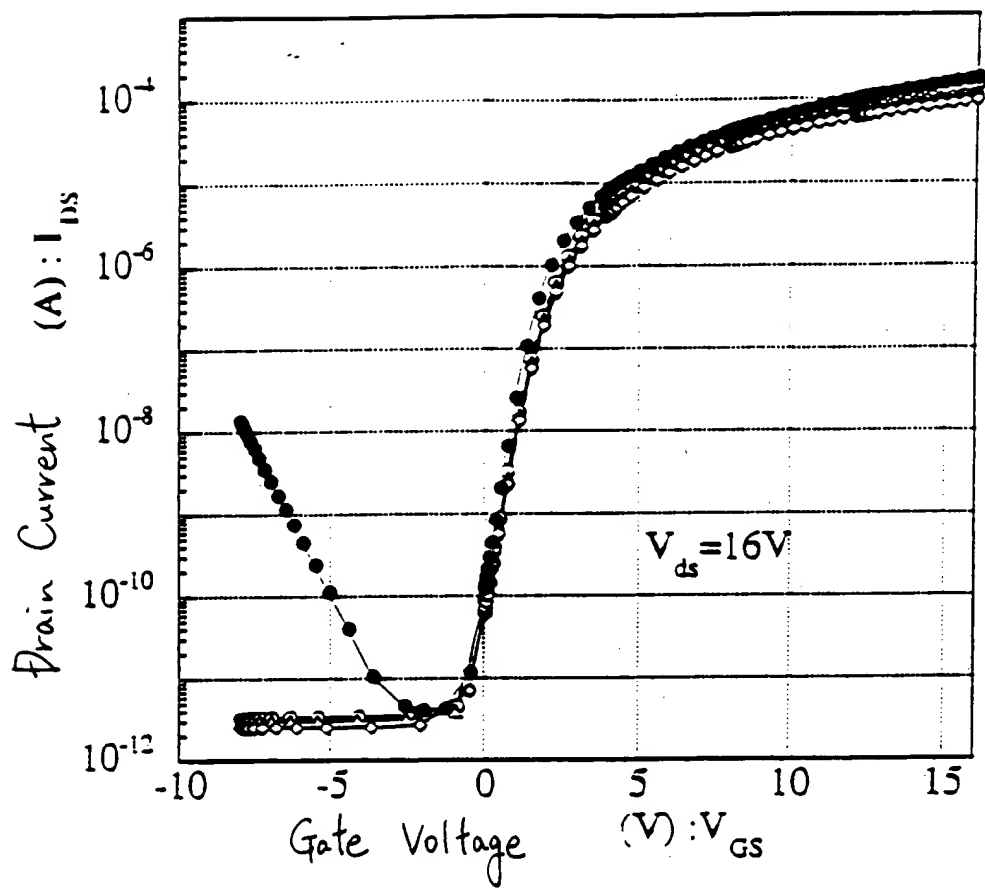
Fig. 20B



$n^-$  concentration:  $4.2E17/cm^3$

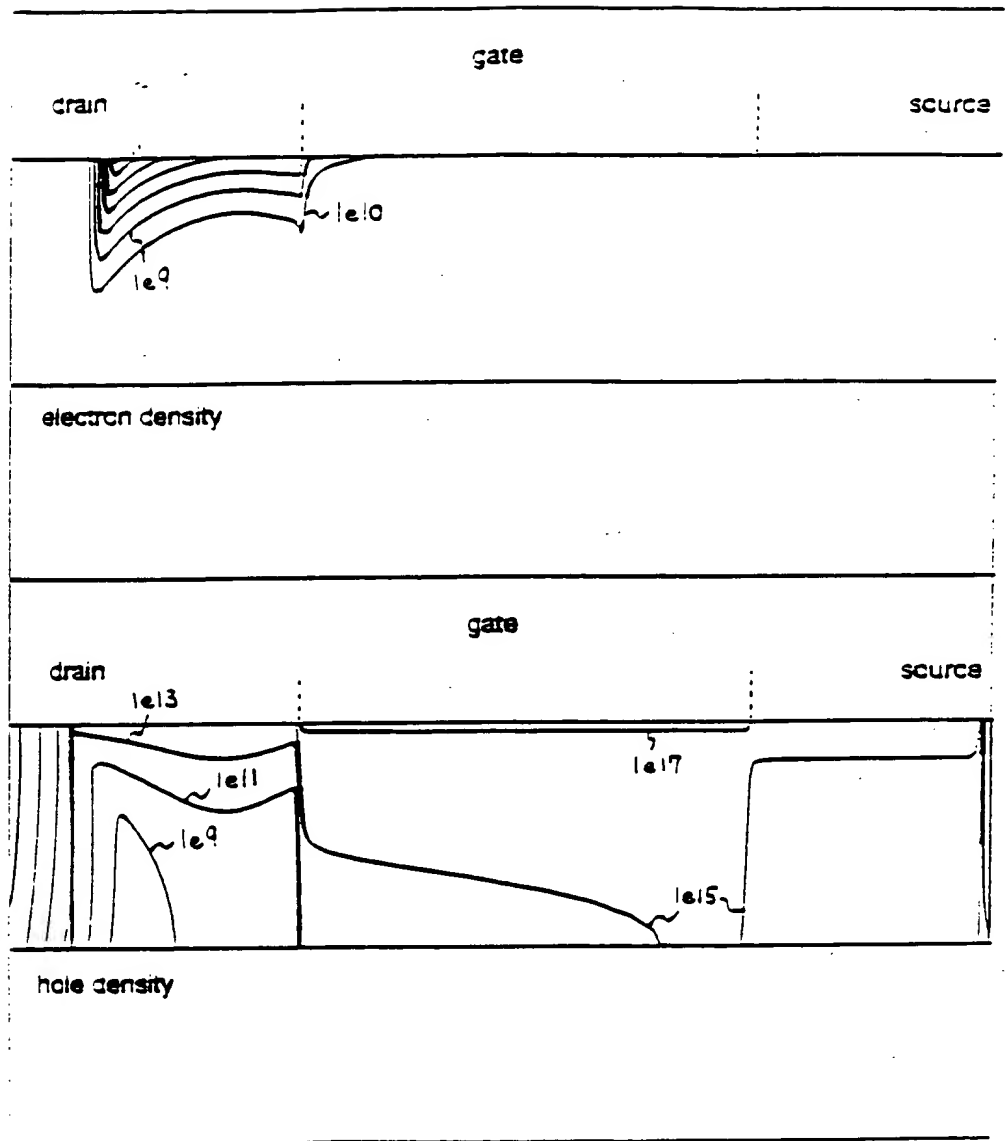
- b: LDD  $0.5 \mu m$  + GOLD  $2.0 \mu m$
- △— c: LDD  $1.0 \mu m$  + GOLD  $1.5 \mu m$
- ◇— d: LDD  $1.5 \mu m$  + GOLD  $1.0 \mu m$
- a: LDD  $0 \mu m$  + GOLD  $2.5 \mu m$

Fig. 21



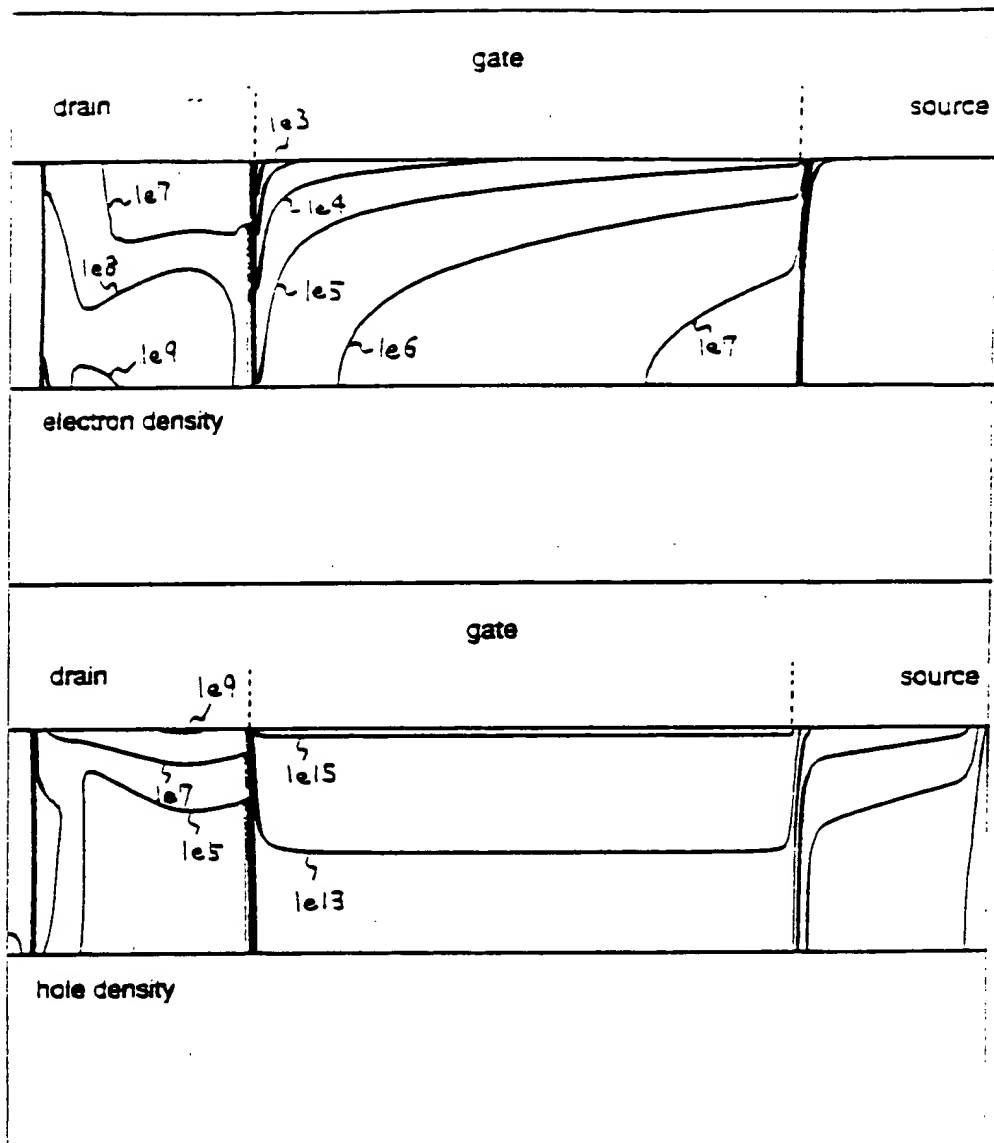
- b: LDD  $0.5 \mu m$  + GOLD  $2.0 \mu m$
- △— c: LDD  $1.0 \mu m$  + GOLD  $1.5 \mu m$
- d: LDD  $1.5 \mu m$  + GOLD  $1.0 \mu m$
- a: LDD  $0 \mu m$  + GOLD  $2.5 \mu m$

Fig. 22



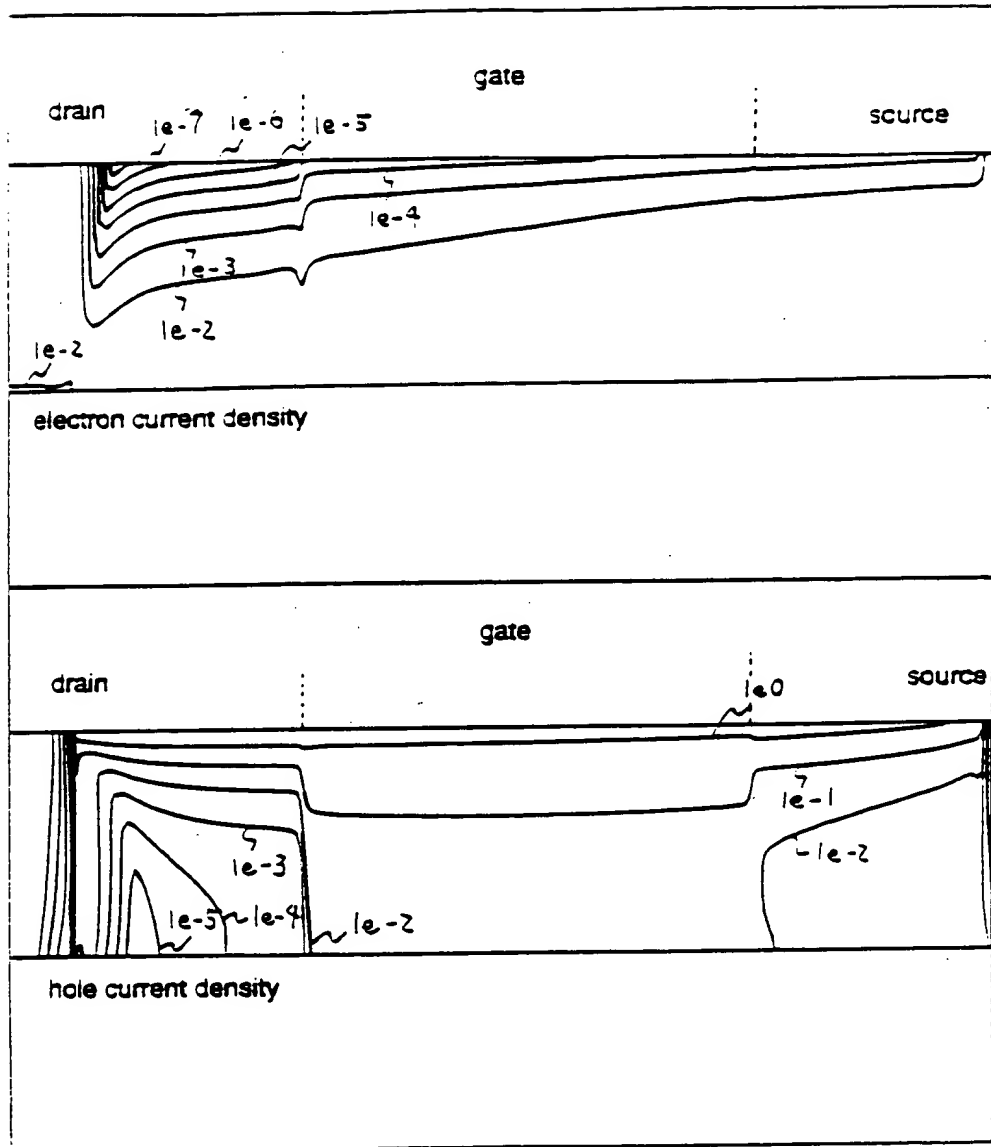
GOLD (2.5  $\mu\text{m}$ ) + LDD (0.4  $\mu\text{m}$ )

Fig. 23



GOLD ( $2.0 \mu m$ ) + LOD ( $0.5 \mu m$ )

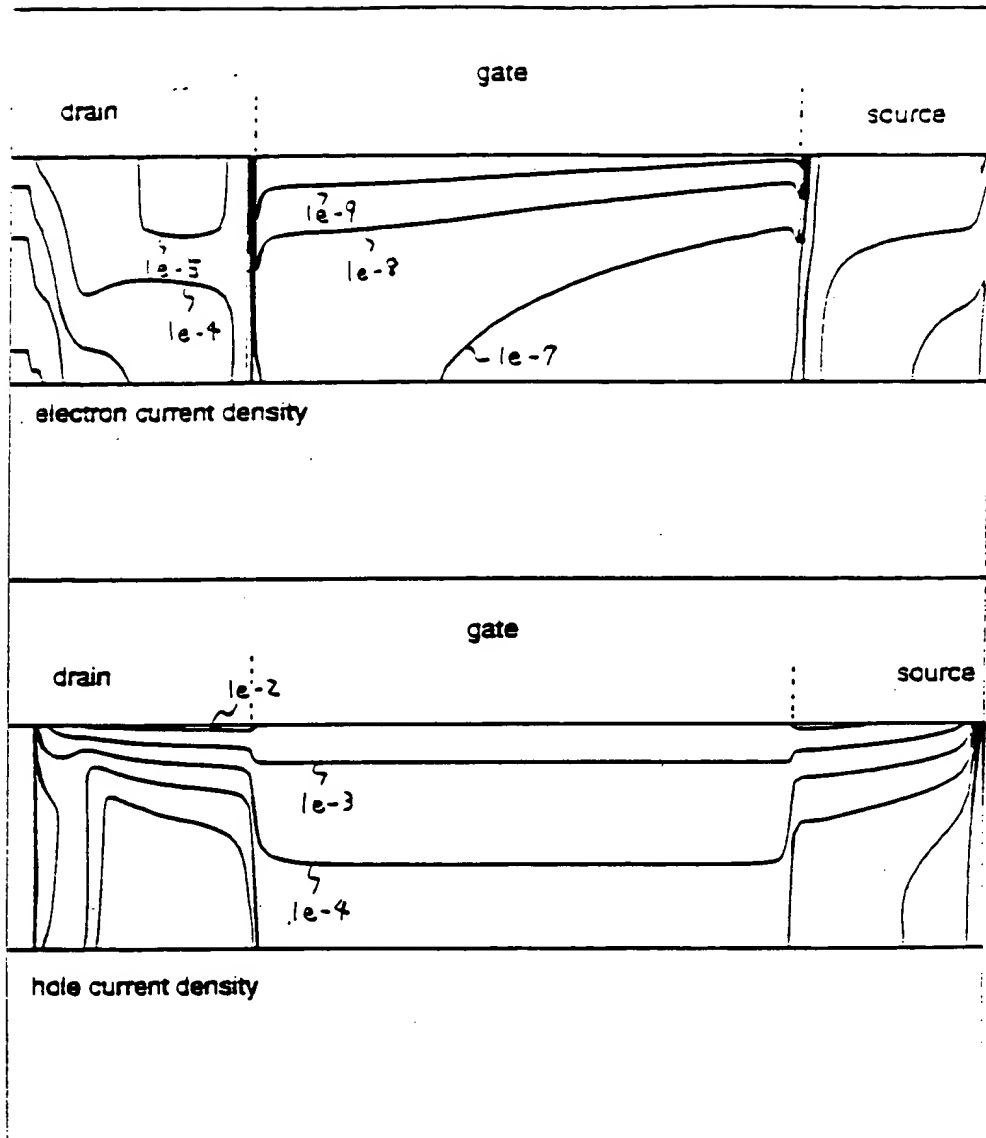
Fig. 24



GOLD ( $2.5 \mu\text{m}$ )  $\rightarrow$  LDD ( $0 \mu\text{m}$ )

Fig. 25





GOLD ( $2.0 \mu m$ ) + LDD ( $0.5 \mu m$ )

Fig. 26

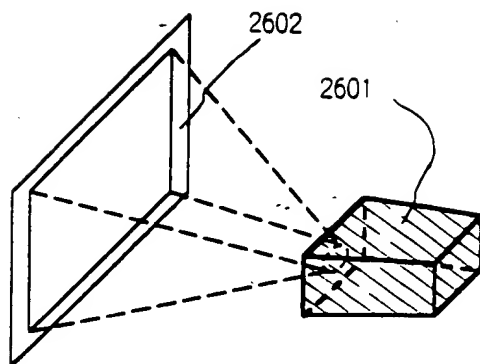


Fig. 27A

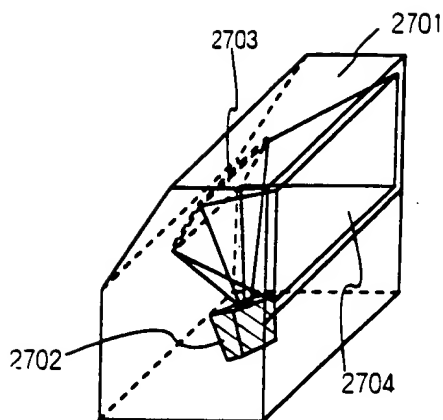


Fig. 27B

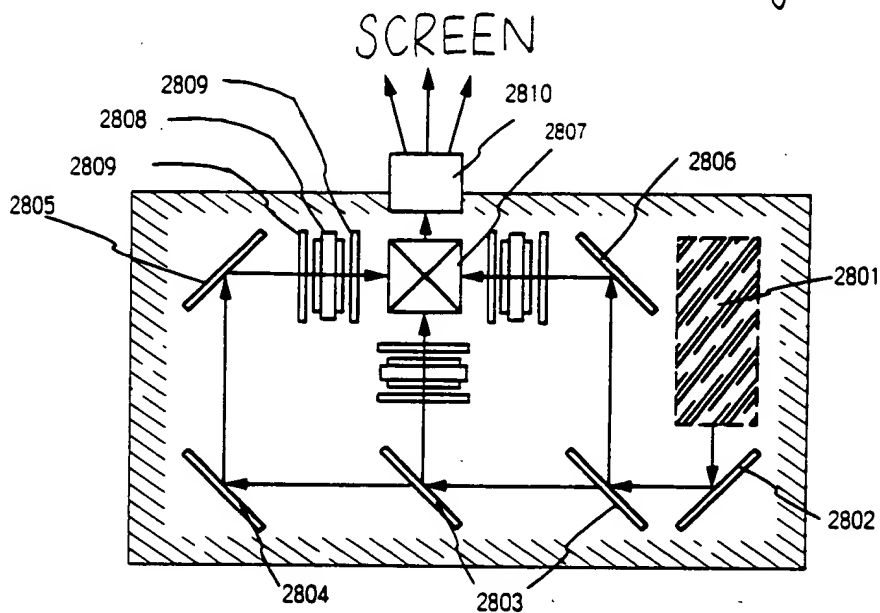


Fig. 27C

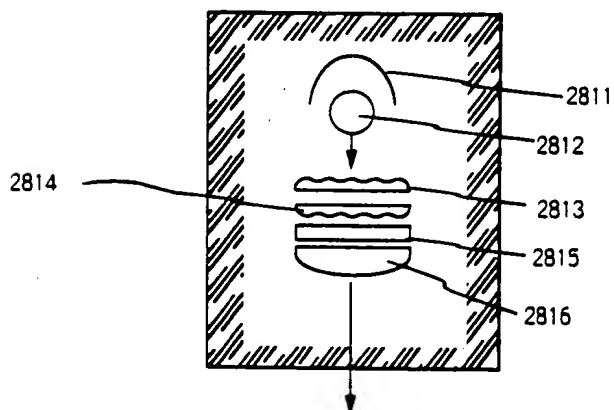


Fig. 27D

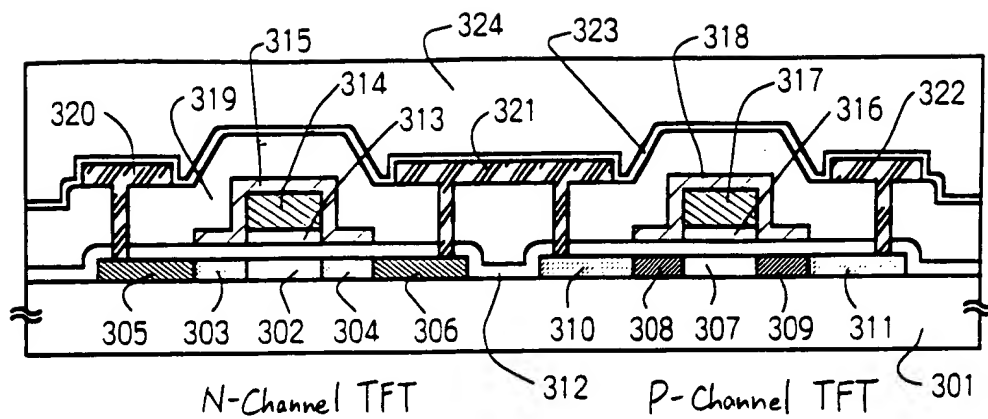


Fig. 28.

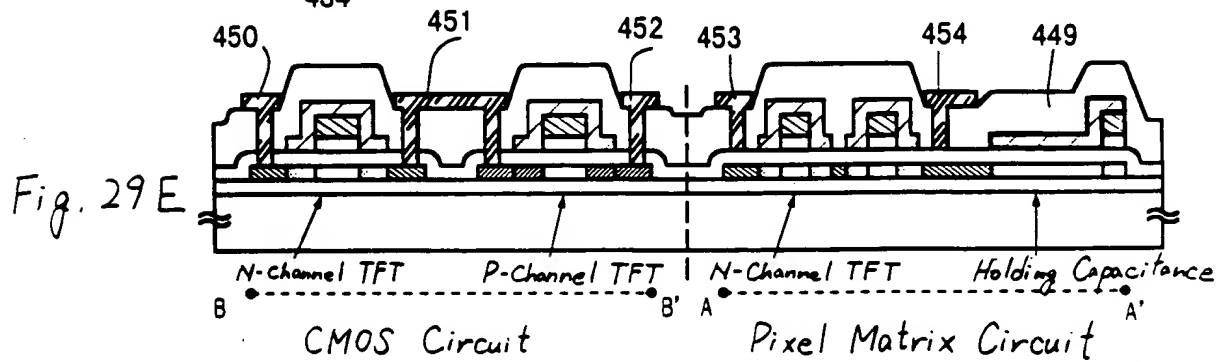
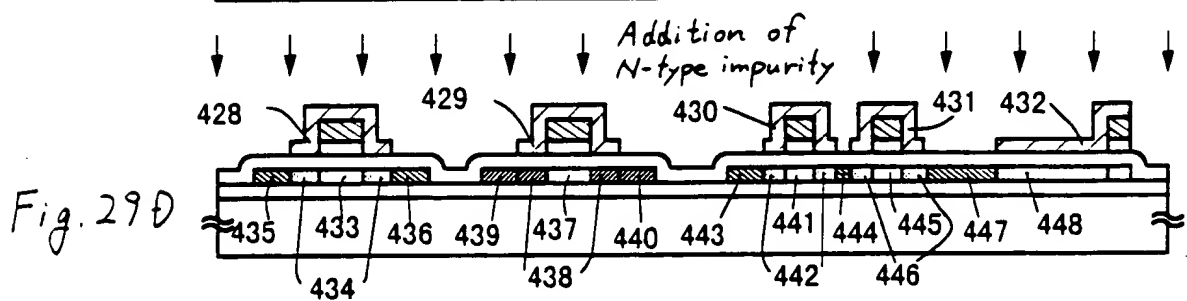
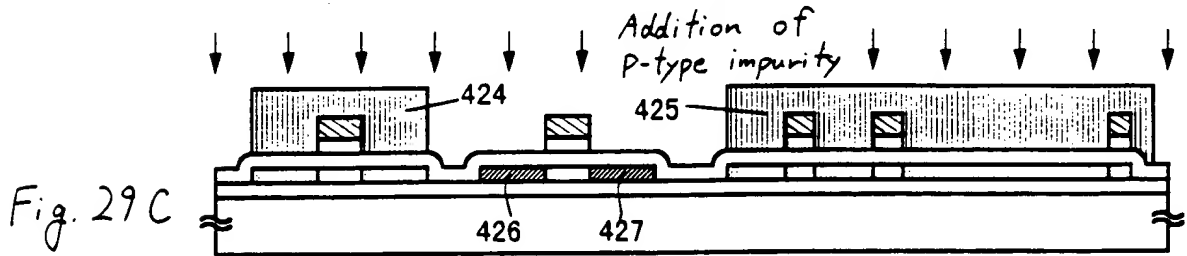
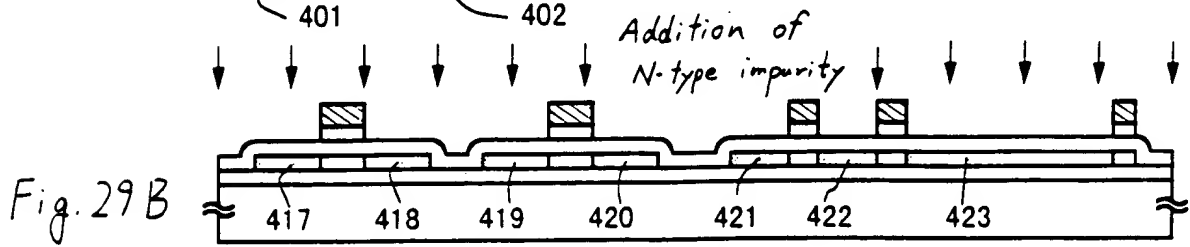
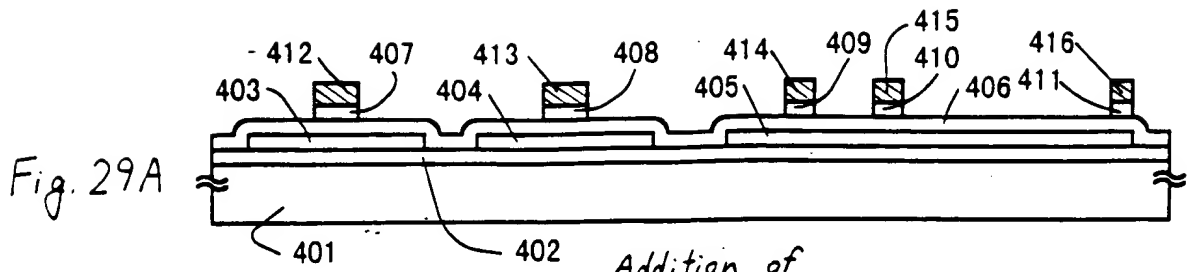


Fig. 30A

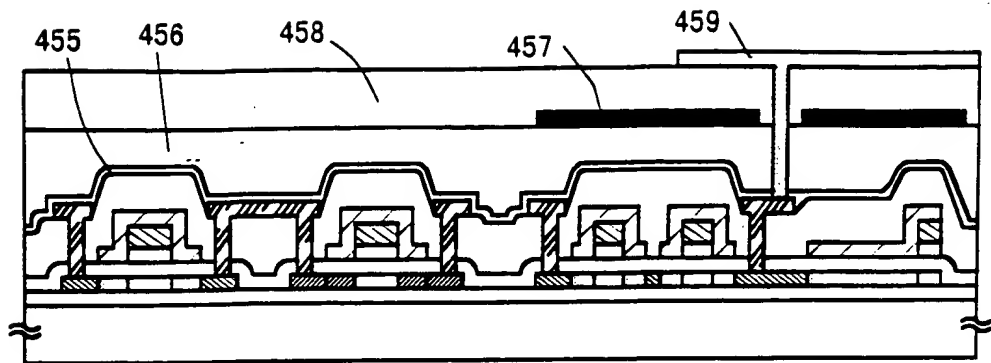
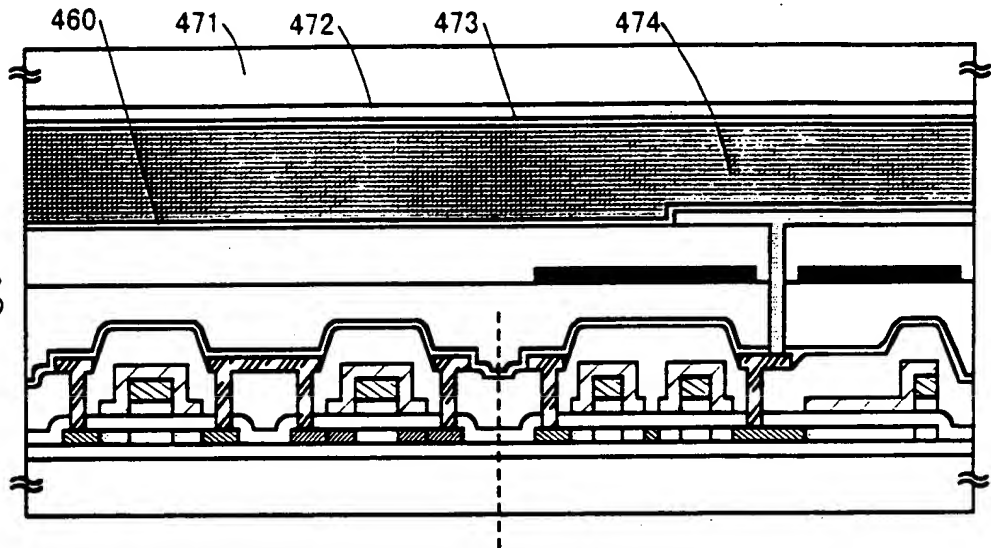


Fig. 30B



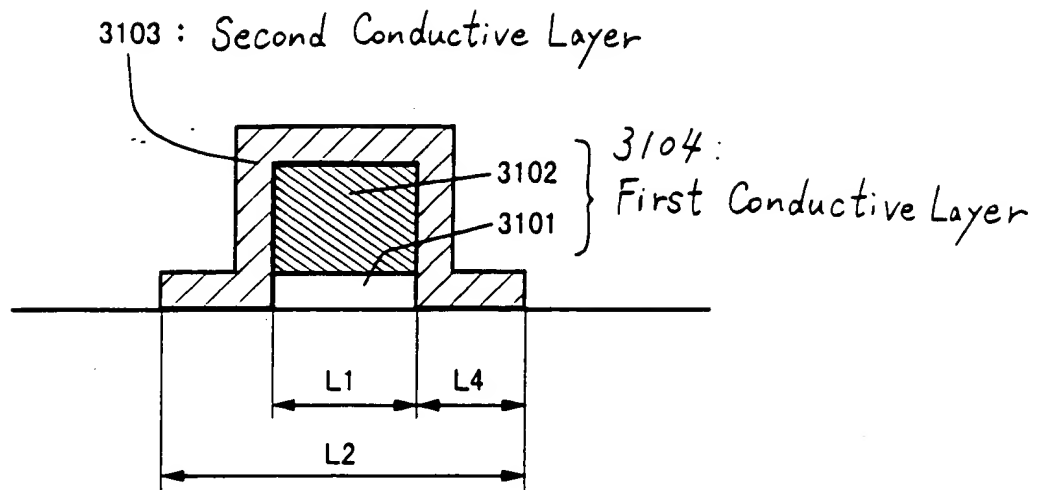


Fig. 31

Fig. 32

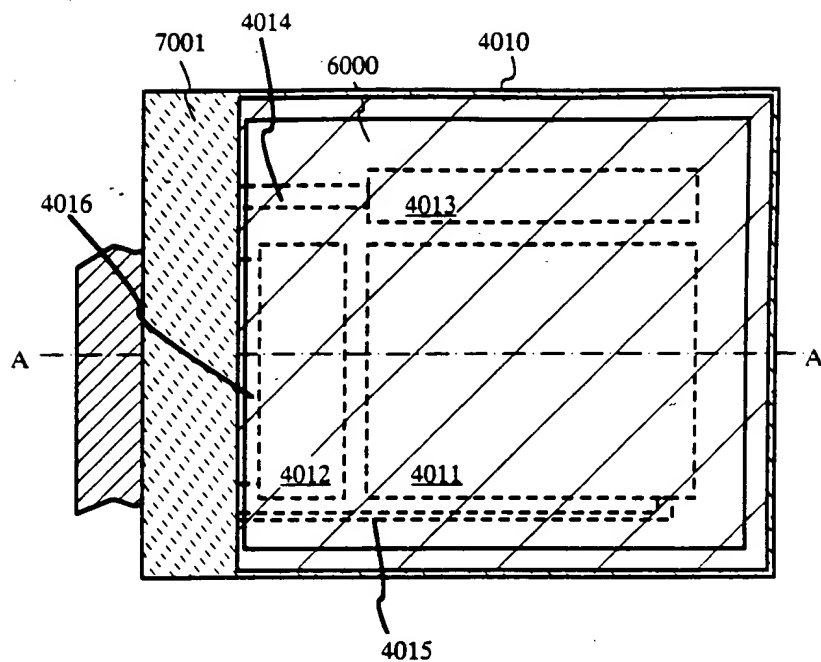


Fig. 33A

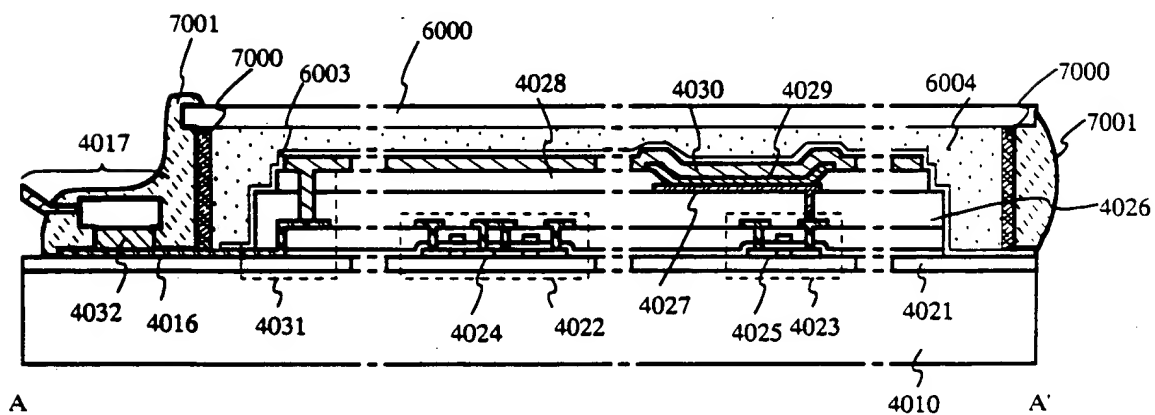


Fig. 33B



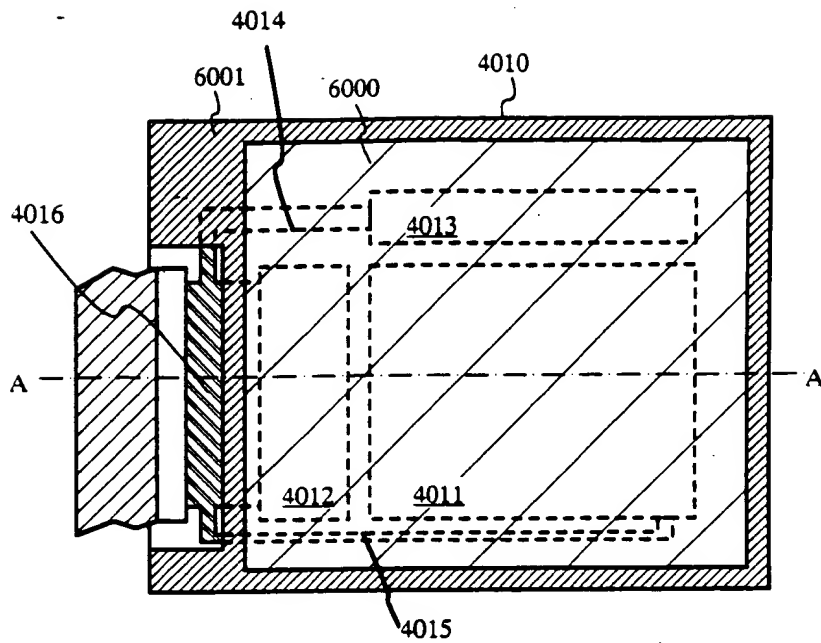


Fig. 34A

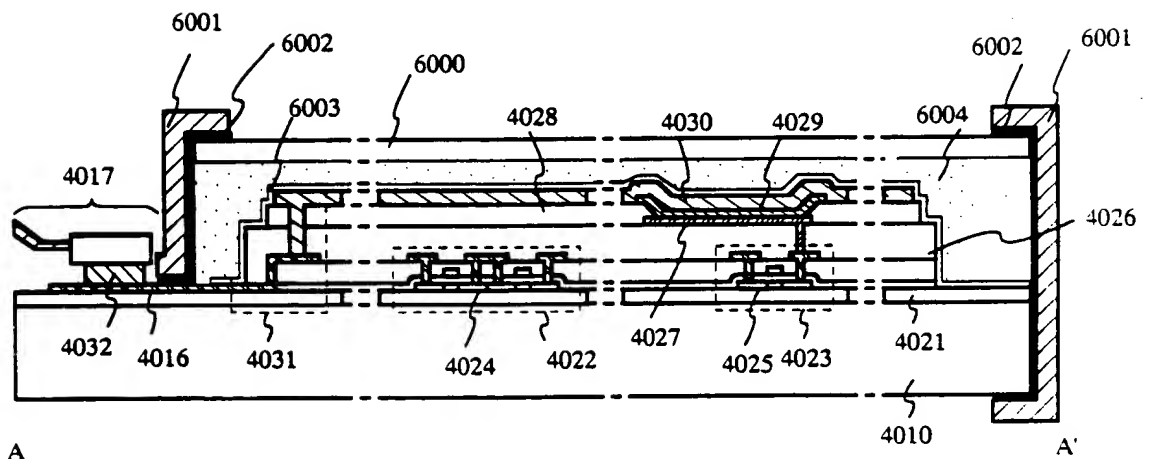


Fig. 34B



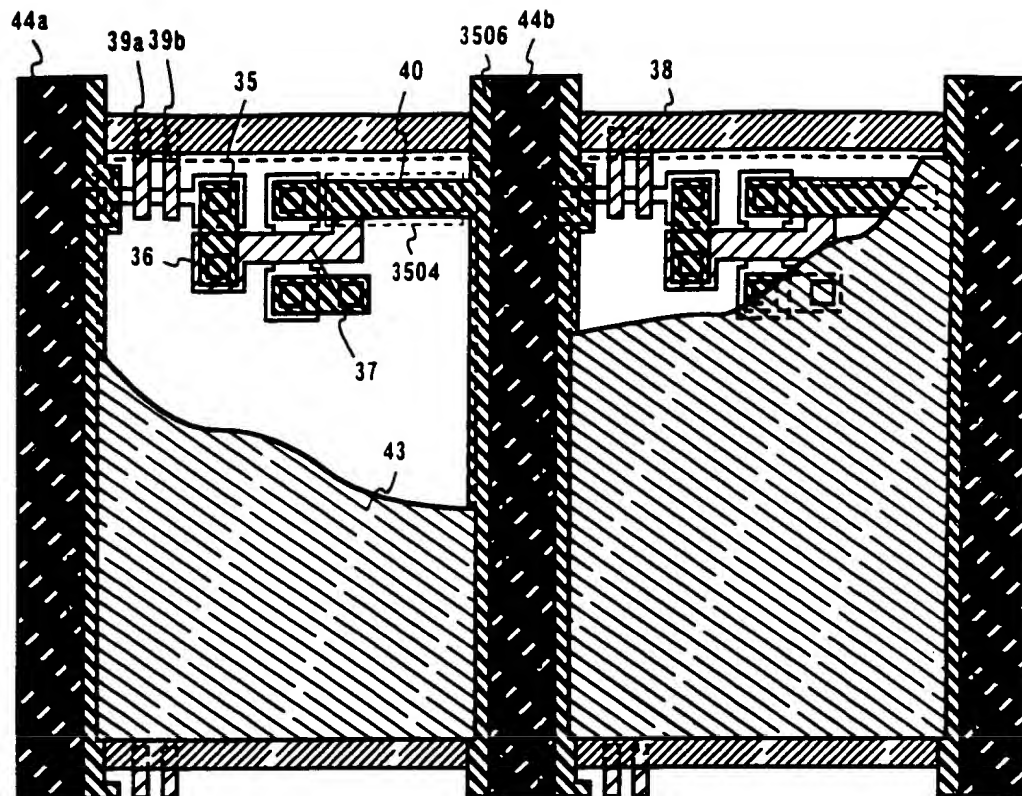


Fig. 36A

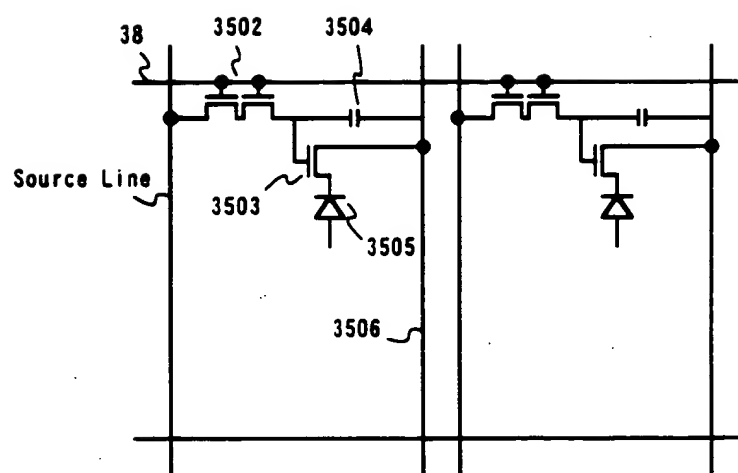


Fig. 36B



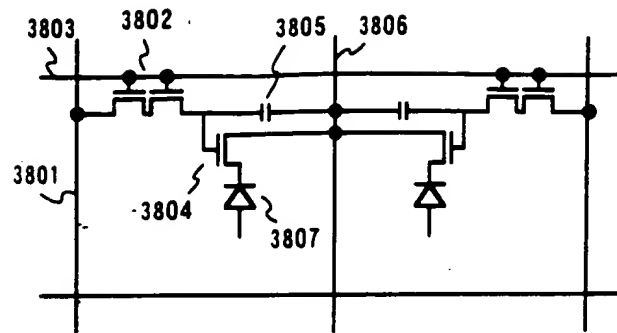


Fig. 38A

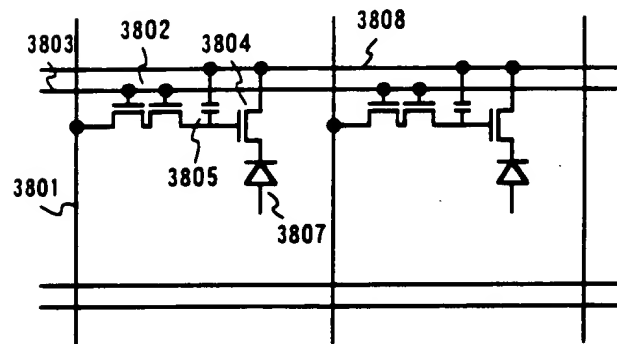


Fig. 38B

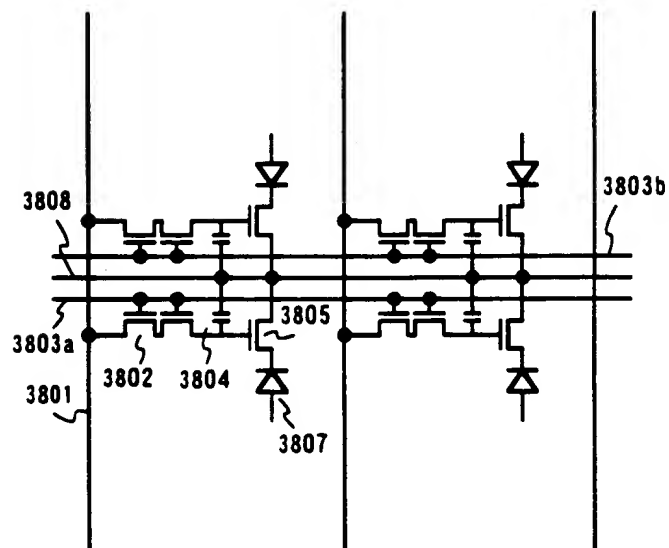


Fig. 38C

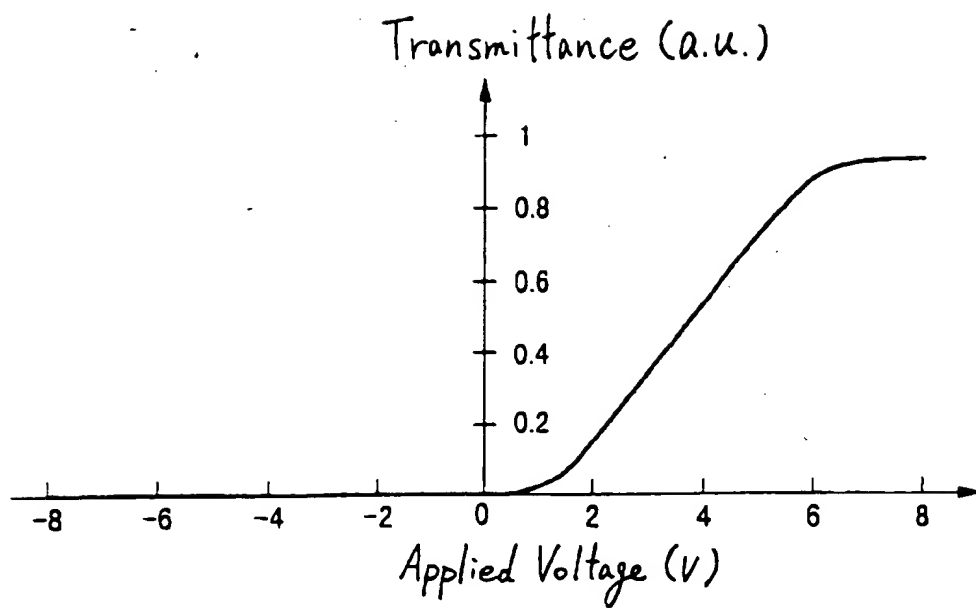


Fig. 39